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(54) **Cleansing and freshening unit for a toilet bowl**

Reinigungs- und Erfrischungsvorrichtung für Toilettenbecken

Dispositif de nettoyage et rafraîchissement d'une cuvette de W.C.

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## Description

This invention relates to a cleansing and/or freshening unit according to the preamble of claim 1.

Such an cleansing and/or freshening unit is known from US-A-3,946,448. The reservoir of the known device is shut off by check valve which is actuated by a lever carrying a flap which is actuated by the flush flow so as to open the check valve under the pressure of the flush flow. The reservoir is positioned beneath the toilet bowl rim and is connected with fluid conveying means for feeding the disinfecting and purifying liquid to the reservoir from a storage container.

GB-A-1,070,188 relates to a device for maintaining urinals, water-closet basins and the like flushed conveniences in a substantially clean, odour free and sanitary condition. The device has to be placed in the cistern of a flushing system for a convenience. The method for obtaining an air-freshening effect is achieved by a separate deodorizer which is connected via a tube to an inverted vessel placed in the cistern of the convenience. If the water level in the cistern rises air is trapped in the vessel and thereby forced or "pumped" through the tube to the deodorizer. The pumping action of the inverted vessel causes air to be expelled through nozzles into a deodorant compartment of the deodorizer whereby a deodorant draught emerges through a grille of the deodorizer each time the cistern refills.

In other known units of this type, use is made of blocks of cleansing and freshening substances in solid form, capable of being suspended by means of some suspension means from the rim of a toilet bowl in cage-shaped containers in the path of the flushing water.

A drawback of the known blocks of cleansing and freshening substances is that they have a short lifetime, the dosing is uneven and such blocks contain fillers that may be detrimental to the environment. An important drawback is that the air freshening effect of such blocks is limited because with each flush of the toilet, the active substance that is dispensed disappears immediately along with the flushing water.

The object of the present invention is to circumvent these drawbacks of known cleansing and/or freshening units capable of being suspended from the rim of a toilet bowl.

To that end, the unit according to the invention is characterized by the features of claim 1.

When the toilet is not used, per unit time a substantially constant amount of liquid will evaporate via the porous mass and thus have an air freshening effect. With each flush, a likewise substantially constant amount of active substance will be carried along by the flushing water and thus have a cleansing effect. It is important that with the unit according to the invention, a double action is obtained, consisting, on the one hand, of a continuous, constant dispensation of freshening substance and, on the other, of a constant measure of cleansing action with each flush.

Material that is left behind as the perfume evaporates will be carried along and removed from the porous mass during flushing, whereby this mass is rinsed clean and clogging thereof is prevented.

In a preferred embodiment of the invention, the unit is characterized by the features of claim 2.

With this embodiment, an important effect is achieved, namely, a delayed action or aftereffect of the active substance after each flush. The point is that with each flush an amount of flushing water will remain behind on the porous mass, trickle through this mass and thereby carry along active substance and any residues through the subjacent bottom perforations and bring them into the water in the water seal of the toilet bowl, where the cleansing action and the diffusion of perfume can continue for some time after the flush.

The cleansing and freshening unit according to the invention therefore combines the advantages of constant dispensation of perfume, constant dispensation of active substance with each flush as long as liquid is present in the reservoir, and delayed action, i.e., after each flush the dispensation of active substance continues for some time.

To clarify the invention, one practical example of the cleansing and freshening unit will be described with reference to the accompanying drawings.

Fig. 1 is a schematic partly sectional side elevation of the unit in the service position some time after a flush;

Fig. 2 shows the unit directly after a flush; and  
Fig. 3 shows a refillable bottle for liquid containing active substances.

According to the drawings, the cleansing and freshening unit is essentially composed of a container 1 having a suspension hook 2, a bottle 3 with cleansing and odorizing liquid and a spongy liquid-permeable closure 4B. In the operative position shown in Figs 1 and 2, in which the bottle is inverted, the closure 4B is in liquid-transmissive contact with a generally disc-shaped porous member 4A of a porous substance, which member 4A is arranged on the bottom 5 of the container.

In the embodiment shown, the container 1 has a bottom 5 with perforations or apertures 6 and an upright sidewall 7 in which passages 8 may be formed. Extending from the bottom 5 are retaining means 9, 10 for securing a liquid reservoir or bottle 11. In the embodiment shown, the retaining means are resilient strips 9 having inwardly directed projections 10.

Referring in particular to Fig. 3, the bottle 3, which is refillable, comprises a mouth or neck 11 with two rings 12 and 13 formed on the exterior thereof and capable of being closed by means of a cap 14 having a ring 15 extending inwards from the surface thereof, which ring 15 is capable of being snapped between the bottleneck rings 12, 13. Fig. 3 further shows an annular label 16, which can be removed after undoing the cap 14. Ar-

ranged in the bottleneck 11 is the spongy closure member 4B.

Bottles 3 for use in the toilet cleansing and freshening unit according to the invention can be filled with an aqueous solution of active substances such as foaming agent, perfume, disinfectant, bleach, coloring, emulsifying substances and a calcium-binding substance.

Fitting a full bottle 3 in the container 1 is effected by removing the cap 14 and the label 16, and moving the bottle in inverted position into the container 1, with the projections 10 of the resilient retaining strips 9 snapping between the rings 12, 13 formed on the bottleneck 11. In the mounted condition of a bottle, the axial positions of the rings 12, 13 and the projection 10 as well as the axial dimensions of the porous masses 4A and 4B are such that when the bottle 3 has been fitted in the container 1, the members 4A and 4B are in fixed mutual contact.

It is clear that for securing a bottle 3 in the container 1, other means can be used as well, such as threaded elements at the bottom 5 of the container and at the bottleneck.

It is further shown that the bottle 3 comprises radial gripping ribs 17. The bottom of the bottle is convex so as to prevent water from being retained on the bottom of the bottle in the service position.

The operation of the toilet cleansing and freshening unit is as follows:

The unit is suspended from the inwards overhanging rim of a toilet bowl by means of the hook 2, in such a manner that the container 1, with the bottle 3 facing the wall of the bowl, hangs partly under the rim. Thus, the unit has a constant effect in that liquid is absorbed from the bottle via the liquid-permeable member 4B into the porous member 4A and perfume evaporates therefrom so as to spread a fresh odor in the toilet room.

When the toilet is flushed, "instant action" is initiated in that flushing water falls from under the rim of the toilet bowl onto the unit, flowing along the ribs 17 over the porous member 4A and carrying along active substances for cleansing the bowl. After flushing, a fresh solution of the above-mentioned cleansing and odorizing substances remains behind in the water seal of the toilet bowl, as mentioned above.

As indicated in Fig. 2, after a flush a layer of water W is left behind above the porous mass 4A, the height of this layer of water being determined by the passages 8 serving as overflows. The residual water flows slowly through the disc-shaped member 4A and the apertures 6 in the container bottom 5. In the process, this residual water removes active substances and any residues of the perfume evaporation from the member 4A. The member 4A is thus purified and at the same time an important delayed action is obtained, namely, the delivery of active substances to the toilet bowl is continued for some time after each flush.

## Claims

1. A cleansing and freshening unit having the twofold purpose of spreading a fresh odour in the toilet room and introducing active substances into the flushing water with each flush, the unit comprising:

- a reservoir (3) for an active substance, such as liquid containing cleansing and air freshening agent;
- suspension means for suspending the unit from the rim of a toilet bowl;
- a porous mass (4A) which is arranged in the path of the flushing water when the unit has been suspended in a toilet bowl;

characterized in that the reservoir has a mouth (11) in which a liquid-permeable closure (4B) is arranged such that the reservoir (3) has its contents in constant communication with the porous mass (4A) when the unit has been suspended in a toilet bowl.

2. A cleansing and freshening unit according to claim 1, characterized in that the suspension means comprise a hook (2) which is connected to a container (1) being open at the top and having a bottom (5) provided with perforations (6), as well as a retaining means (9, 10) for the mouth (11) of the liquid reservoir (3), which retaining means are arranged at the bottom (5), the porous mass (4A) extending on the container bottom (5) over the perforations provided therein.

3. A cleansing and freshening unit according to claim 2, characterized in that the retaining means (9, 10, 12, 13) are constructed as resilient strips (9), extending from the container bottom (5), with inwardly extending projections (10) and, adapted for cooperation therewith, rings (12, 13) projecting from the mouth (11) of the liquid reservoir (3).

4. A cleansing and freshening unit according to claim 3, characterized in that the liquid reservoir (3) can be closed by a cap (14) having a ring (15) projecting inwards from the surface thereof, said ring (15) being capable of being snapped between the rings (12, 13) of the reservoir mouth (11).

## Patentansprüche

1. Reinigungs- und Erfrischungsvorrichtung, die den doppelten Zweck erfüllt, einen frischen Geruch im Toilettenraum zu verbreiten und bei jeder Spülung wirksame Stoffe in das Spülwasser zu bringen, versehen mit:

- einem Behälter (3) für einen wirksamen Stoff,

wie eine Reinigungs- und Lufterfrischungsmittel enthaltende Flüssigkeit;

- einem Aufhängemittel zum Aufhängen der Vorrichtung am Rand eines Toilettenbeckens;
- einer porösen Masse (4A), die bei in einem Toilettenbecken aufgehängter Vorrichtung in der Bahn des Spülwassers angeordnet ist;

dadurch gekennzeichnet, daß der Behälter eine Mündung (11) aufweist, in der ein flüssigkeitsdurchlässiger Verschuß (4B) derart angeordnet ist, daß der Inhalt des Behälters (3) in dauernder Verbindung mit der porösen Masse (4A) steht, wenn die Vorrichtung in einem Toilettenbecken aufgehängt ist.

2. Reinigungs- und Erfrischungsvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Aufhängemittel einen Haken (2) umfassen, der mit einem Behälter (1) verbunden ist, oben offen ist und einen mit Durchlöcherungen (6) versehenen Boden (5) sowie ein an dem Boden (5) angeordnetes Haltemittel (9, 10) für die Mündung (11) des Flüssigkeitsbehälters (3) aufweist, wobei die poröse Masse (4B) sich auf dem Behälterboden (5) über die darin angeordneten Durchlöcherungen (6) erstreckt.
3. Reinigungs- und Erfrischungsvorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß die Haltemittel (9, 10, 12, 13) als sich von dem Behälterboden (5) erstreckende, elastische Streifen (9) mit nach innen gerichteten Vorsprüngen (10) und zur Zusammenarbeit mit diesen eingerichteten, an der Mündung (11) des Flüssigkeitsbehälters (3) vorstehenden Ringen (12, 13) ausgebildet sind.
4. Reinigungs- und Erfrischungsvorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß der Flüssigkeitsbehälter (3) durch eine Kappe (14) mit einem an ihrer Fläche nach innen vorstehenden Ring (15) verschließbar ist, der zwischen die Ringe (12, 13) der Behältermündung (11) einschnappbar ist.

## Revendications

1. Unité nettoyante et rafraîchissante répondant au double objectif de répandre une odeur fraîche dans les toilettes et d'introduire des substances actives dans l'eau de rinçage chaque fois que la chasse est tirée, l'unité comprenant:

- un réservoir (3) pour substances actives, tel qu'un liquide contenant un agent de nettoyage et de rafraîchissement de l'air;
- des moyens de suspension pour suspendre l'unité au rebord d'une cuvette de WC
- une masse poreuse (4A) qui est disposée dans le trajet de l'eau de rinçage lorsque l'unité a été

suspendue dans une cuvette de WC,

caractérisée en ce que le réservoir possède un embout (11) dans lequel est disposée une fermeture perméable aux liquides (4B) de telle sorte que le réservoir (3) ait son contenu en communication constante avec la masse poreuse (4A) lorsque l'unité est suspendue dans une cuvette de WC.

2. Unité nettoyante et rafraîchissante selon la revendication 1, caractérisée en ce que les moyens de suspension comprennent un crochet (2) qui est raccordé à un récipient (1) ouvert sur le dessus et doté d'un fond (5) portant des perforations (6) ainsi que des moyens de retenue (9, 10) pour l'embout (11) du réservoir de liquide (3), lesquels moyens de retenue sont disposés au fond (5), la masse poreuse (4A) s'étendant sur le fond du récipient (5) au-dessus des perforations qu'il comporte.
3. Unité nettoyante et rafraîchissante selon la revendication 2, caractérisée en ce que les moyens de retenue (9, 10, 12, 13) sont composés de bandelettes élastiques (9) s'étendant depuis le fond du récipient (5) avec des saillies (10) tournées vers l'intérieur et, destinées à coopérer avec celles-ci, des bagues (12, 13) tournées vers l'embout (11) du réservoir de liquide (3).
4. Unité nettoyante et rafraîchissante selon la revendication 3, caractérisée en ce que le réservoir de liquide (3) peut être fermé par un bouchon (14) possédant une bague (15) tournée vers l'intérieur à partir de sa surface, ladite bague (15) étant capable d'être coincée entre les bagues (12, 13) de l'embout du réservoir (11).

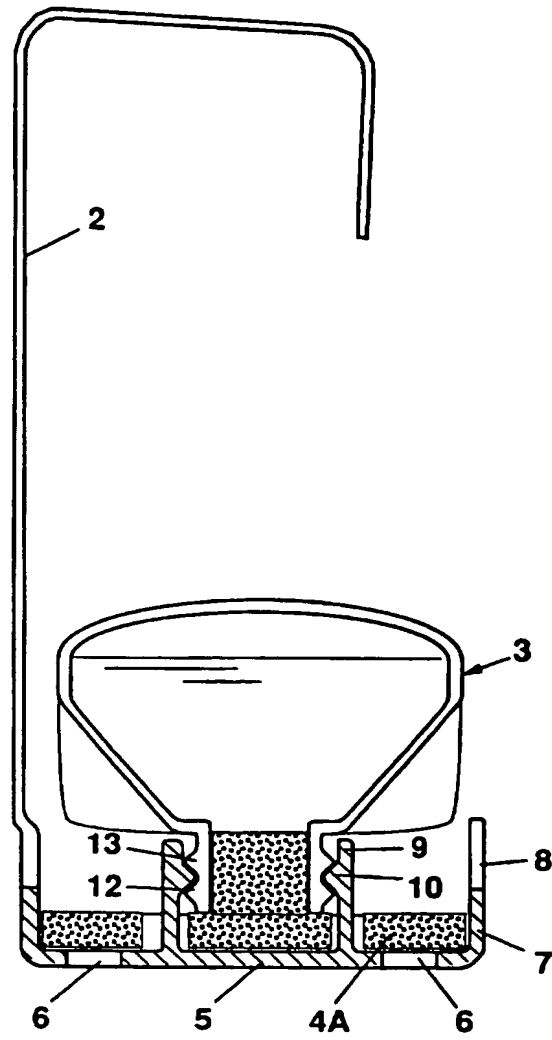


FIG.1

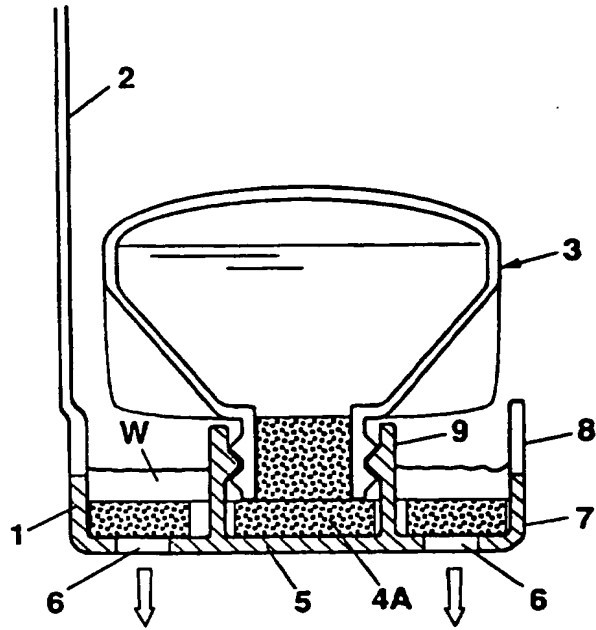


FIG. 2

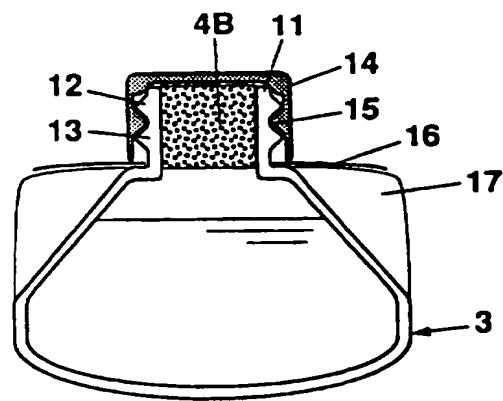


FIG. 3